

Title: The Theory of Online Markets – Principle 3: Two-Sided Markets Require Two-Sided Trust
Subtitle: Why Feedback Symmetry — Not Scale — Determines Platform Integrity
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Abstract

This paper introduces a structural theory of dysfunction in two-sided digital markets: the *Two-Sided Trust Principle*. Drawing on systems theory, platform economics, and signaling theory, it argues that markets cannot sustain coherence when only one side is structurally enabled to signal, verify, or adapt. Using online hiring platforms as a primary case study — and contrasting them with higher-functioning platforms like Airbnb and Uber — this paper shows how feedback asymmetry produces cascading signal failure: resume inflation, employer ghosting, and unverifiable job posts.

Platforms like Uber succeed not because of content quality or AI, but because both drivers and riders can shape platform behavior through visible feedback. In hiring platforms, job seekers remain invisible, unverified, and unrepresented in platform adjustment. This feedback asymmetry is not an accidental oversight — it is a design choice that prioritizes engagement over resolution, degrading trust and matching quality over time.

This is the third paper in *The Theory of Online Market Gravity*, a five-part framework exploring how digital platforms drift structurally when feedback loops collapse. Building on earlier principles — that markets optimize what they measure, and that adaptive systems require functional tension between actors — this paper shows that trust asymmetry is a structural

precondition of market decay. The Two-Sided Trust Principle serves as both a diagnostic tool and a design imperative: reciprocal feedback is not optional. It is the architecture of trust itself.

1. Introduction: Why Platforms Without Feedback Drift Toward Fragility

Digital platforms promise speed, access, and efficiency. But not all platforms deliver on those promises equally — and the difference often comes down to feedback architecture. In peer-to-peer systems like Airbnb or Uber, both sides of the market have the ability to rate, verify, and shape platform behavior. Trust is co-constructed through reciprocal visibility. In contrast, hiring platforms like Indeed or LinkedIn present a different model: one in which only employers are visible, signal-bearing participants, while job seekers are largely invisible, unverifiable, and voiceless.

This paper introduces the *Two-Sided Trust Principle*: in any two-sided market, the ability to maintain platform coherence depends on feedback symmetry. When one side cannot signal, verify, or respond, the system loses its ability to self-correct — and trust begins to decay. The job market serves here as a primary case study, not because it is uniquely flawed, but because it demonstrates this failure mode most vividly.

1.1 Types of Two-Sided Markets by Feedback Architecture

To understand how feedback asymmetry produces divergent platform outcomes, we define three types of two-sided markets:

Market Type	Feedback Architecture	Examples	Observed Outcome
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Symmetric Feedback Markets	Both parties rate, verify, and affect visibility	Airbnb, Uber, Etsy, eBay	Stable trust, adaptive platform behavior, reputational signal clarity
Asymmetric Feedback Markets	One side signals; the other is invisible	Job boards, LinkedIn, Craigslist Jobs	Signal degradation, ghosting, spam, disengagement
Unmoderated/Decentralized	No formal feedback; relies on norms or tools	Reddit, Discord, Craigslist General	Mixed outcomes; trust varies with subcommunity or platform use-case

Labor platforms, as shown, are structural outliers—not merely broken systems but systems designed without bilateral trust architecture. That design, not individual behavior, explains much of the dysfunction.

2. Theoretical Background & Literature Review

Systems Theory & Feedback

The Two-Sided Trust Principle is grounded in systems theory, particularly the role of feedback in maintaining adaptive integrity. As Meadows (2008) articulates, systems fail not simply when components malfunction, but when feedback loops are suppressed or distorted, preventing self-correction. Online labor markets have removed or dulled the very signals that allow the system to adjust to reality—particularly those originating from job seekers.

Ashby's Law of Requisite Variety (Ashby, 1956) reinforces this breakdown: any system must possess internal complexity equivalent to the complexity of its environment in order to remain

stable. In hiring platforms, suppressing job seeker feedback in favor of employer-facing metrics violates this principle—creating fragility by excluding one whole side of the system’s complexity.

This paper applies these ideas to digital labor platforms, where the absence of bilateral feedback loops produces cascading breakdowns: mismatches rise, trust collapses, and neither side can reliably sort signal from noise. What appears as “ghosting” or “spam” is actually signal decay under feedback starvation—a systemic failure mode, not a behavioral anomaly.

Signaling Theory in Labor Markets

In labor economics, Spence’s (1973) theory of signaling defines how job seekers convey unobservable qualities (like skill or motivation) to employers. A functioning signal environment allows both sides to infer value, make selections, and establish trust in the absence of complete information.

However, signaling theory implicitly assumes that both sides can participate in the signaling exchange. Modern hiring platforms undermine this balance. While employers can selectively signal via posting behavior, timing, and offer-making, job seekers have no reliable channel for signaling credibility—or evaluating employer quality. This asymmetry leads to recursive degradation: resumes lose value through inflation, and employers receive increasingly noisy inputs.

Prior labor research, such as Autor, Levy, and Murnane (2003), has documented the changing nature of job tasks and automation’s impact on skills demand. Rothstein (2021) and Kahn (2010) show how recessions distort career trajectories and suppress early signals. Yet none of this work

addresses the platform-mediated breakdown of signaling infrastructure itself. Aurora's Principle introduces a structural diagnosis: it is not that users are signaling less—it is that platforms are erasing the visibility and consequences of those signals.

Platform Trust and Feedback Systems

The dynamics of trust in digital platforms have been robustly explored in platform economics and digital governance literature. Rochet and Tirole (2003) provide foundational insights into two-sided markets, emphasizing pricing strategies and indirect network effects. But their models often assume transparent signaling and rational actor alignment—assumptions that break down when one side of the market (job seekers) is systemically muted.

In peer-to-peer markets such as Airbnb or Uber, Tadelis (2016) and others show how mutual rating systems improve accountability and market function. These platforms incentivize good behavior through reciprocal visibility: both buyer and seller, driver and rider, can rate and be rated. This creates adaptive tension—feedback loops that penalize bad actors and reward reliability.

Hiring platforms are an anomaly. Despite being two-sided markets, they retain only one-sided feedback structures. Employers face no formal reputational consequences for ghosting, posting fake jobs, or leaving listings open indefinitely. Job platforms are fully free to let any sort of recruitment scammer on as long as it look halfway presentable. The goal isn't to be a hiring solution, its to be the performance of a hiring solution so as to optimize on the profitability of a market operating without trust while avoiding the external responsibility. A trillion-dollar industry that works by not working The more it doesn't work, the more it makes. Job seekers

cannot rate employer responsiveness or report false listings in a standardized, platform-encoded way. Trust thus degrades without consequence or correction.

This feedback failure is not just a missing feature—it is a structural defect. The market serves as free advertising of brra

Summary:

While prior work on labor signals, systems adaptation, and platform design has addressed relevant dynamics, none sufficiently frame feedback asymmetry as a central failure mode. The Two-Sided Trust Principle synthesizes these traditions into a unified structural diagnosis: the decay of trust in digital labor markets is not incidental—it is baked into their architecture.

3. The Two-Sided Trust Principle: Model and Mechanisms

Building on the structural insights of measurement drift (Principle 1) and relational tension (Principle 2), the Two-Sided Trust Principle formalizes a failure mode specific to two-sided digital platforms: trust asymmetry. In labor marketplaces where only one participant group can reliably signal, rate, or verify, the system cannot maintain adaptive coherence. Trust is not just eroded over time—it is structurally unachievable from the start when feedback is unidirectional.

This section outlines a recursive model of failure in hiring platforms, grounded in systems theory and signaling logic.

3.1 Actors and Structural Roles

Digital hiring platforms are composed of three interdependent actors:

- **Employers**, who create listings and select candidates;

- **Job Seekers**, who submit applications and attempt to signal value;
- **Platform Operators**, who control visibility, metrics, and monetization logic.

Unlike platforms such as Uber or Airbnb, where both sides review one another and trust is co-constructed, hiring systems treat job seekers as inputs to be filtered—not as equal participants in a mutual signaling system. Employers retain power to signal (via listings, responses, or silence), while job seekers lack any channel to evaluate legitimacy or affect platform behavior.

3.2 Signal Asymmetry and Feedback Collapse

This asymmetry is not incidental—it is designed. Employers can post, ignore, or hire without consequence. Job seekers, meanwhile, send high-effort signals (resumes, cover letters, portfolios) into a one-way system that offers little information or recourse in return.

With no visibility into employer behavior, job seekers lose the ability to calibrate their efforts. This leads to resume inflation, mechanical optimization, or disengagement. From the platform's perspective, this behavior appears productive—because engagement remains high—even as the underlying trust fabric disintegrates.

3.3 Platform Incentives and Metric Gaming

Platforms monetize engagement, not resolution. Every ghost job, repeat application, or resubmitted resume increases activity. It is rent-seeking in disguise when job seekers are data-points not users their user experience is of no consequence. Wasting job seekers time wastes employers money. This activity degradation of the market is masked by an old narrative about who has reliable trust signals in a market situation where the revenue streams of the platforms (newspapers/online) have changed entirely.

A perverse loop emerges:

- Job seekers, lacking feedback, apply more broadly;
- Employers, overwhelmed or uninterested, ghost or list in bad faith;
- Platforms log the engagement, rewarding noise;
- Signal distortion increases;
- Matching outcomes deteriorate.

As shown in Principle 1, platforms optimize what they measure. As Principle 2 establishes, systems without counterbalancing tension cannot self-correct. Together, they create conditions where trust cannot emerge—because the architecture cannot register it.

3.4 Formalizing the Loop

The Two-Sided Trust Failure Loop consists of five interlinked breakdowns:

- **Signal Imbalance:** Only one side (employers) controls visibility; (But their understanding of *their* visibility is falsely confident. in an algorithmic space full of untold ghost jobs.
- **Feedback Void:** Job seekers cannot rate, verify, or flag;
- **Incentive Misalignment:** Platforms profit from engagement, not success;
- **Signal Inflation:** Job seekers overproduce undifferentiated content; this results in employer overengagement.
- **Trust Collapse:** Matching accuracy and legitimacy decay system-wide.

This structure is recursive: each cycle increases entropy. Even high-quality listings or resumes become indistinguishable from noise.

3.5 Naming the Principle: The Two-Sided Trust Rule

“Two-sided platforms require two-sided trust. If one side cannot signal, verify, or adapt, the system is unstable by design.”

In a functioning two-sided platform market, trust is not merely a byproduct—it is the coordinating infrastructure that allows adaptive tension between actors to stabilize and guide behavior. Each stakeholder—employer, job seeker, and platform operator—holds a defined role in a reciprocal signaling ecosystem. Employers signal opportunity through credible, transparent listings. Job seekers respond with calibrated applications informed by prior visibility into employer behavior. Platforms facilitate visibility and adjustment by monitoring interaction quality, surfacing credible signals, and providing responsive feedback mechanisms to both parties.

In such a structure, feedback is directional and mutually consequential. Job seekers who observe consistent platform responsiveness are more likely to invest effort. Employers who receive tailored, high-quality applications are more likely to engage transparently. Platforms, sensing shifts in trust through user interaction patterns and reviews, can evolve their systems to sustain alignment. Trust is not assumed—it is constructed through loops of signal, response, and consequence.

This loop preserves the **functional tension** described in Principle 2. Instead of degrading under pressure, the system remains responsive because each actor’s behavior influences outcomes. The

feedback loop becomes a stabilizing structure—not a stressor—allowing trust to emerge from accountability and shared visibility.

As articulated in the Functional Tension Axiom (Principle 2), a market is constituted not merely by its participants, but by the structured tension between them. In digital labor platforms, this tension involves three core actors: job seekers, employers, and platform operators. While these systems are often called “two-sided,” they functionally operate in three dimensions, requiring signaling and accountability across all sides. If even one group lacks the tools to express, adjust, or exit meaningfully, the entire system becomes brittle. Without reciprocal feedback mechanisms, coordination is not possible—only accumulation and noise.

Importantly, trust does not require full transparency across stakeholder groups. It requires intra-group visibility and consequence. Job seekers must be able to discern the credibility of the job posts they are looking at. Employers must be able to signal displeasure with the platform’s ability to source them quality candidates. Platforms must be able to sense and respond to user trust. If any group’s behavior does not feed back into platform adaptation, trust cannot be created via the tension where the market is demonstrating trust that keeps all users engaged. What emerges is not friction — it is fragility.

Historically, job platforms once operated under such structurally adaptive conditions. Local newspapers, for instance, served as intermediaries of trust. Job seekers did not formally review employers, nor did employers track candidate pipelines—but accountability existed nonetheless. Their trustworthiness was not accidental—it was structurally aligned with Principle 1. Newspapers were incentivized to measure and distribute accurate information, because their revenue depended on reader trust. Moreover, newspapers operated within visible community

dynamics: misleading job ads could provoke phone complaints, damaged credibility, or canceled subscriptions. These were not abstract metrics—they were lived, relational consequences.

Because the platform's business model was aligned with user trust, it was responsive to both job seekers and employers.

What changed in the shift to digital markets was not the importance of trust, but the visibility and consequence of feedback. Online platforms abstracted user behavior into algorithmic engagement metrics. Job seekers were reduced to datapoints, while employers became the platform's primary customer. When other markets moved online (eBay, Apartments.com) they adapted by creating formal user reviews where previously there were none. This was left off the design of digital labor market platforms. Whereas the “professional silence”—the expectation that job seeker experience should not inconvenience the employer—once applied only to hiring managers, it now applies to the platform itself. And unlike newspapers, their business model rewarded attention—not accuracy or hiring success. The result is a system that optimizes the illusion of hiring efficiency while profiting from the unresolved chaos it generates.

User reviews function as asynchronous visibility tools—a form of retrospective co-presence that allows users to see what others like them experienced. In a physical store, shoppers can observe what others are buying, avoiding, or complaining about. Online, that ambient social signal vanishes. In its place, negative reviews emerge as crucial emotional signals: they surface patterns of harm, coordinate avoidance, and provide directional clarity in environments that otherwise lack transparency. Where trust is absent, anger becomes signal. And where platforms suppress that signal, users are forced into blind decisions with no shared visibility.

This paper builds on the Human Theory of Systems (Springsteen Trumble, forthcoming), where Principle 3 asserts that mutual trust is not a moral ideal but a design precondition for legitimate systems. When any actor is structurally muted, systems do not simply lose efficiency—they lose coherence.

In the case of online hiring platforms:

- Employers retain full signaling power (through job listings, rejections, or silence);
- Job seekers have no standardized tools to verify employers, flag ghost listings, or track outcomes;
- Platforms profit regardless of whether trust is maintained.

The result is not a partial breakdown. It is a full-system failure in how trust, sorting, and correction are meant to function. The absence of review capacity for job seekers leaves one leg of the feedback triangle unsupported. Trust asymmetry is not a minor UX flaw—it is an architectural defect in the scaffolding of the digital labor market.

Just as Principle 2 demonstrated that systems collapse when they cannot hold adaptive tension, the Two-Sided Trust Rule shows that asymmetry in feedback mechanisms prevents that tension from forming in the first place.

A market that cannot see itself cannot evolve.

And a platform that fails to hear all sides cannot remain trusted.

The Two-Sided Trust Rule is both a diagnostic tool and a design imperative. To remain viable, platforms must restore structural voice—not only to employers, but to job seekers as well. Not for equity alone—but for function

4 . Comparative Case Studies: Feedback Symmetry in Digital Markets

5.1 Markets With Mutual Feedback

In many digital marketplaces, mutual reviews serve as structural stabilizers. Platforms like Airbnb, Uber, Etsy, Amazon, and app stores allow both parties in a transaction to rate and review one another. This feedback symmetry creates visible consequences for bad behavior and tangible rewards for quality engagement. The presence of bilateral ratings enables platforms to adapt over time: reputational signals influence search rankings, flag abuse, and prompt design reforms. Even when imperfect, this mutual visibility preserves the functional tension that allows the system to cohere and evolve.

4.2 Markets Without Feedback Symmetry

Job boards, Craigslist, traditional recruiting firms, and most skill certification platforms lack this symmetry. Employers retain signaling power—able to post, ghost, or reject without consequence—while job seekers have no mechanism to verify job legitimacy, review employers, or document harmful experiences. These platforms reward activity and scale over quality. Feedback loops are either one-sided or entirely absent, making the platform incapable of reflecting user experience back into system adjustment. The results are ghost jobs, spam listings, inflated credentials, and burned-out applicants navigating an increasingly illegible system.

4.3 Synthesis: Why Labor Platforms Break Down

This comparison highlights labor platforms as **anomalies** in the landscape of digital markets. Unlike commerce or peer-to-peer service platforms that adopted reciprocal trust infrastructure, hiring platforms institutionalized silence. The problem is not just incomplete design—it is systemic. Without mutual feedback, the tension that drives adaptation disappears, and the platform becomes inert to user trust. What results is not just user dissatisfaction, but a breakdown in the structural integrity of the market itself.

5. Implications for Platform Design and Policy

5.1 Platform Design Recommendations

To correct feedback asymmetry and restore adaptive tension, platforms must integrate structural tools for job seeker participation. This includes:

- Verified closure systems that document whether a listing was filled or expired.
- Job seeker feedback mechanisms that allow users to rate employer responsiveness, flag ghost jobs, or signal listing quality.
- Trust indexing, where platform behavior is scored over time based on signal clarity, response rate, and listing integrity.

These features turn passive data exhaust into active accountability—allowing the platform to reflect, recalibrate, and signal reliability to all participants.

5.2 Policy Considerations

Beyond platform design, public institutions have a role to play. Just as the Consumer Financial Protection Bureau (CFPB) introduced transparency and enforcement to financial markets, labor markets may require public accountability infrastructure. This could include:

- Market-level transparency tools, such as public job listing audit trails or listing-to-hire ratios.
- Minimum feedback standards for platforms above a certain scale.
- Funding for public or nonprofit job boards that serve as infrastructure, not ad revenue engines.

Such policies would formalize labor platforms as part of the public employment architecture, not merely private engagement engines.

5.3 Structural Comparison to Other Platforms

Peer-to-peer platforms like Uber and Airbnb offer a roadmap. Their reputation systems aren't just UX features—they are mechanisms of governance. Mutual reviews enforce norms, guide behavior, and provide an organic regulatory signal. In contrast, hiring platforms lack any such structure. If labor markets are to function digitally, they must inherit the feedback architecture that other online systems have used to remain both efficient and legitimate.

6. Conclusion, Limitations, and Future Directions 🌀

Digital labor platforms are not failing because of user error, malicious intent, or technological immaturity. They are failing because of structural asymmetry. When one side of a two-sided market—namely, job seekers—is denied the tools to signal, verify, and influence the system, trust collapses. And without trust, matching degrades, platforms stall, and participants disengage.

The Two-Sided Trust Principle reframes this as a systemic flaw—not a user behavior problem. Just as Principle 1 showed how platforms drift when they optimize the wrong metrics, and Principle 2 demonstrated that relational tension is essential to adaptive systems, this principle

identifies mutual feedback as the linchpin of platform legitimacy. Without reciprocal visibility and consequence, the digital labor market becomes a closed loop of dysfunction.

Limitations

- This is a conceptual framework, not a formal model. It proposes testable hypotheses but offers no simulations or statistical tests to validate them.
- The scope is limited to centralized, digital hiring platforms. It does not account for decentralized models or niche ecosystems with existing bilateral feedback.
- Stakeholder complexity is acknowledged but not fully segmented across industry types, platform sizes, or regulatory contexts.

Future Directions

To advance this theory into practice and empirical study, future work could include:

- Agent-based simulations to test the recursive trust failure loop under varied feedback conditions.
- Trust signal indexing to measure platform integrity across metrics like ghost rate, closure verification, and bilateral responsiveness.
- Comparative platform studies, both across hiring platforms and between labor markets and other digital sectors, to assess how feedback architecture shapes outcomes.

The forthcoming Principle 4 will introduce a reformulation of the Jevons Paradox as applied to labor markets, highlighting how increasing access without increasing accountability can paradoxically reduce efficiency.

Ultimately, platform reform is not optional—it is the necessary next step in evolving labor markets toward systems that serve both sides, not just one.

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Future work will explore simulation models, trust signal indexing, and comparative applications across other two-sided domains. Principle 4 will turn to a reframing of the Jevons Paradox as applied to hiring markets: why access without accountability can paradoxically reduce efficiency.

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